



TITLE:

THE GROWTH OF IRON AND STEEL INDUSTRY IN JAPAN AND THE PROBLEM OF RAW MATERIALS (I)

AUTHOR(S):

Ono, Kazuichiro; Namba, Heitaro

CITATION:

Ono, Kazuichiro ...[et al]. THE GROWTH OF IRON AND STEEL INDUSTRY IN JAPAN AND THE PROBLEM OF RAW MATERIALS (I). Kyoto University Economic Review 1955, 25(1): 11-41

ISSUE DATE:

1955-04

URL:

<https://doi.org/10.11179/ker1926.25.11>

RIGHT:

VOLUME XXV

NUMBER 1

Kyoto University Economic Review

MEMOIRS of The FACULTY of ECONOMICS
in
KYOTO UNIVERSITY

Peculiarities in Local Finance..... *Masao Kambe* (1)

The Growth of Iron and Steel Industry in

Japan and the Problems of Raw Materials (1)

..... *Kazuichiro Ono* (11)
..... *Heitaro Namba*

Capital Accumulation

—A Note in Reply to Professor Hideichi Horie—

..... *Maurice Dobb* (42)

APRIL 1955

PUBLISHED BY
THE FACULTY OF ECONOMICS
KYOTO UNIVERSITY
KYOTO, JAPAN

THE GROWTH OF IRON AND STEEL INDUSTRY IN JAPAN AND THE PROBLEM OF RAW MATERIALS (I)

By

Kazuichiro Ono* and Heitaro Namba**

FOREWORD.

The history of iron and steel industry in Japan can be called a history of the development of capitalism in Japan, for this industry represents and embodies every phase and problems of capitalism in Japan.

Due to the limited space we cannot describe every phase and aspect of our iron and steel industry because it naturally contains all the tangled and multifarious problems involved in the birth and growth of the capitalistic institution in this country. The present study, therefore, is confined to a consideration of the problems of raw materials of this industry. Let us look at history of iron and steel industry whose first milestone is found in the foundation of the Yawata Iron Works, and placing the emphasis on the problem of how the issue of raw materials was handled.

1. Birth of Iron and Steel Industry and Its Significance.

Toward the closing years of the Tokugawa Shogunate, the feudalism in Japan was under the throes of political crisis in the face of pressure from a succession of farmers' riots, on one hand, and, from the mounting inroads of capitalistic influences of Western Powers, on the other. Under the circumstances, the government leaders at that time felt that implementation of the military power of Japan was the paramount needs of the time. It was natural, then, that munitions industry, in the last years of the feudalistic Shogunate, was developed spurred by a positive assistance rendered by the government leaders. This particular branch of industry, thus, was far ahead of all other branches of industrial activities.

The new Restoration Government of Meiji, in its turn, had to tackle the problem of strengthening Japan's fighting power. The newborn Meiji

* The author is lecturer of Economics at Kyoto University

** The author is a member of Kyoto University Economic Society

regime, in its essence, was semi-feudalistic absolutism, and, was never free from a semi-feudalistic sway in the Agriculture. Moreover, Japan, at that time, was as semi-colonial as she had been prior to the Restoration. The urgent demand for the implementation of the country's military power called for the establishment of a modern munitions industry. It was, then, evident that the first problem to be tackled by the embryonic Meiji regime was to place Japan's munitions industry upon a firm basis, and at the same time to encourage the development of other modern industries. However, two powerful restraints confronted it: the first was the unfavorable tariff rates, unilaterally imposed upon Japan by virtue of the international obligations resulting, indirectly from Japan's failure to observe the provisions of the Ansei Treaty of 1858, and, directly, from the second attempt by the Choshu clan to drive away foreign vessels from its territorial waters at point of artillery fire (1864). This unfavorable tariff rates actually revealed the position Japan held in the international family of nations at that time, for the unilateral tariff pact imposed upon her also provided for the enlargement of foreign settlements at various places in the country and for extraterritoriality for foreign residents and granting of most-favored nation clauses to local foreign traders. The second was the scantiness of capital accumulation for production, and also the pre-manufacture period technical level of the country which also served to indicate the low international position of Japan.

The trade agreement affixed to the Treaty of Friendship and Commerce concluded in 1858 with Britain, the United States, France, Russia and the Netherlands stipulated that the import tariffs to be fixed at 35% at the maximum and 5% at the minimum, and that, unless otherwise provided for, the rate to be 20% advalorem. The pact also pledged that the ports of Kanagawa, Niigata and Hyogo, in addition to Shimada and Hakodate, to be opened for foreign trade. The Tokugawa Government, however, was not in a position to act according to the treaty provisions because the anti-foreign sentiments among the people were overwhelmingly powerful and the Government could not afford to ignore the trend. The Government, indeed, had to ask for the postponement of the payment of the indemnity for the bombardment of foreign vessels by the Choshu clan. The foreign Powers concerned eventually acquiesced to this. The Government, however, had to pay a high price for this: the foreign powers obtained the pledge, in 1866, that the import tariffs will be lowered to 5% advalorem. The position of Japan, as a matter of fact, was rendered much worse than it would appear from this, because, the tariff rate of 5% advalorem was to be imposed on the basis of the market price at

port of export, and, further, because foreign imported articles were often reported at a lower price than it actually was quoted at port of export. Such practice was then feasible because the actual commercial situation prevailing in foreign countries was hard to know. Taking into consideration the frequent rise in prices after import had been effected, the 5% ad valorem import duty, substantially, was often less than mere 1%.¹⁾ And, this low rate of import duty was to be applied also to the imports from Belgium, Italy, Portugal, Denmark, Switzerland, Russia, Sweden, Norway, Spain, the North German Tariff League and Austria. It was obvious that this arrangement, which was undisputably highly unfavorable to Japan, resulted in a tremendous financial loss on the part of Japan, at the same time it placed a gigantic obstacle in the way of the development of Japan's domestic industries, and this situation was allowed to persist for the next thirty years up till the time when such humiliating treaties were eventually revised.²⁾

It has already been mentioned earlier that the military industry of Japan was emerging on the fore as early as the Bunkyu era toward the closing years of the Tokugawa regime. It was already taking the shape of modern mechanized industry. There is no question, however, that it still had nothing to compare with the modern industries of advanced Western Powers, which had earlier undergone the baptism of Industrial Revolution, and were, then, fast assuming the aspect of a monopolistic capitalism.³⁾ In a strict sense of the term, the industry of Japan at that time, had not even reached the stage of manufacturing industry. Under these circum-

Note: (1.) Refer to page 98, "Japan's Tariffs", by Tōa Keizai Chōsa KyoKu— the East Asia Economic Investigation Bureau. The situation then was that not only the import duty but all the routine business of the customs offices could not be carried out unless approved by the respective foreign ministers stationed in Japan.

(2.) The exterritoriality and foreign settlements were terminated in 1899. Foreign armed forces were stationed in Japan between 1863 and 1875. Foreign trade was substantially in the hands of resident foreign traders up till the time of the much-debated revision of treaties. The following table indicates the percentage of exports and imports of Japan handled by foreign Japanese traders. : ※

year	export		import	
	foreign traders	Japanese traders	foreign traders	Japanese traders
1874	99.5	0.5	99.97	0.03
1889	81.6	18.4	70.8	29.2
1900	62.9	37.1	60.6	39.4
1901	75.2	24.8	63.0	37.0
1911	48.5	51.5	36.2	63.8

※ These figures are from Asahi Shimbun Sha : Nippon Keizai Sōkan.—General Statistics of Japanese Economy 1930.

mstances, the policy taken by the new Meiji Government to encourage and foster the growth of domestic industries tended to place emphasis on the speedy introduction into the country, of the advanced industrial technique of the Western Powers rather than to subsidize her existing industries. This vast difference in the level of the industrial development, at the same time was accompanied with a similar difference in the qualitative capabilities of available labor, and this proved to be a handicap in the government's plan to have imported Western industrial establishment firmly installed in Japan.

Thus, it is seen that the Meiji regime, working under such adverse conditions, could not resort to the protective tariff system for the purposes of protecting domestic industries. This may compare, with a striking contrast, with the case of Germany and the United States, which, as far as international trade was concerned, were still somewhat behind the other Western Powers at that time, but boldly resorted to a protective measure, which not only helped to increase their respective national revenue but also went a long way toward accumulating their respective capital assets.⁴⁾

These circumstances naturally made it unavoidable that many of Japan's industries relied on a direct government subsidy and consequently took on the shape of government-controlled enterprises. This tendency was more pronounced in the military industry, as would be naturally presumed.

The following is a chronological survey of the major military industries forrun or controlled by the government from 1866 to 1890:

1866. The government establishes iron works at Yokosuka and Yokohama. In 1870 these were placed under the control of the Ministry of Industry, and, in 1872, under the control of the Ministry of Navy. The Sekiguchi Works was established, which, in 1879, became the Tokyo Ar-

- (3.) Refer to the following comparison between the Nagasaki Iron Works, one of the leading iron manufacturing plants in Japan at that time, and the Krupp Factory of Germany:

Krupp (1862)	steam engine	HP	furnaces	forgery	steam hammer	tools	labor
	32	1236	161	49	14	203	2400
Nagasaki Iron Works	3	29	1	6	1	20	300

- (4.) When a feudalistic nation advances into a modern capitalistic one usually the policies of colonialism, taxation, issue of national bonds and industrial protection are combinedly taken. In the case of Japan, she was not in a position to resort to the policy of colonialism and of a protective tariff, and her main source of tax revenue was land taxes. This is strikingly compared with the case of the United States, where, during 1789 (the year of the promulgation of the Constitution) and 1860, more than 90 % of her tax revenue came from tariffs. In Germany, too, tariff revenue occupied more than a half of the total tax revenue up till 1907.

senal. The Nagasaki Iron Works was established, which, in 1871, was placed under the control of the Ministry of Industry, renamed the Nagasaki Shipbuilding Plant. The Ishikawajima Shipbuilding Plant was established, which, in 1874, was merged with the Naval Arsenal.

1870. The Munitions Company was established. This, in 1879, became the Osaka Arsenal.

1874. The Kamaishi Mines was placed under government control. The Naval Weapons Manufacturing Plant was established at Tsukiji, Tokyo. This, in 1879, was renamed Naval Arsenal.

1882. The Krupp-type Crucible steel manufacturing plant was established at Tsukiji, the first of Western-style steel making.

1884. The Osaka Arsenal imported from Europe the steel and copper gun compression machines.

1885. The Hyogo Shipbuilding Bureau imported from England iron vessel manufacturing machines.

1887. (Tanaka Iron Works at Kamaishi was founded. The Tokyo Steel Manufacturing Company was established.)

1890. The Navy installed the Siemens-type steel manufacturing furnace at the Yokosuka Arsenal. A 200 k.g. steel manufacturing furnace was installed at the Osaka Arsenal, which marked the beginning of the steel manufacturing enterprise at the hands of the Army.

These instances of the successive establishment of military factories under government control as well as the importation of machinery from foreign countries and the employment of foreign technicians⁵⁾ at these plants were a manifestation, of the policy of the Meiji regime to speedily foster and implement the military industries of a modernizing Japan.

In spite of all these forbidding restraints, the Meiji government, slowly but steadily, succeeded in the projected implementation of Japan's military power. To exemplify this, the following may be cited:

(1) In 1880 the Murata infantry rifle was adopted as the standard weapon for the Japanese army. With the adoption in 1885 of the improved Murata infantry rifle, the Japanese army was for the first time equipped with the uniform weapon, and the credit went to the Tokyo Army Arsenal, where "experienced workmen could manufacture scores of standard rifles after the installation of machines."

(5.) The first instances of employing foreign technicians in an effort to make up for the deficient technical knowledge on the part of the Japanese were seen as early as 1856 (Nagasaki Iron Works) and 1865 (Yokosuka and Yokohama Iron Works). It is noteworthy that the practice persisted until 1891 (Yawata Seitetsu Sho—Yawata Iron Works) and 1913 (Nippon Kōkan Co.—Nippon Steel Tube Co.).

(2) The systematic study of the manufacturing of artillery weapons was started in 1880. In 1883, the adoption of the Italian-style 7 c.m. field guns and mountain guns, 12 c.m. cannons and 15 c.m. mortars were decided. By the end of 1886, all the field artillery corps in the country were supplied with these artilleries. The Osaka Arsenal, which undertook the manufacture of these artillery pieces, had the 200 k.g. steel manufacturing furnace installed for the first time in 1890. In the following year the capacity of the furnace was increased up to 600 k.g.

(3) With regards to naval weapons, it is recorded that the Naval Arsenal, in 1881, had steel manufacturing and forging plants installed, and, during 1883-1885, they could manufacture guns with the steel manufactured at these plants. In 1887, the furnace underwent a remodelling, and, during 1889-1892 steel material for two 47 m.m. rapid firers was successfully cast and forged at the Naval Arsenal.

(4) In 1885 Yokosuka Arsenal, which engaged in building of naval vessels, sent a group of workmen to the Krupp in Germany to study the method of manufacturing iron and steel. In August, 1890, it decided to purchase from the Crusot Company in France two furnaces for casting steel. The Siemens-style furnace was thus established using heavy oil as its fuel, and in 1892, all the main boilers and engines of warship Akitsushima were manufactured with the steel made in Japan.

(5) In 1890 it was proved that the cast iron manufactured at Kamaishi was "somewhat superior in quality" to the Gregorini cast iron of Italy, and, after this, the cast iron manufactures in our country was used in manufacturing various categories of weapons.

It was then recognised that the establishment of a modern large-scale iron manufacturing industry was of utmost importance in order to systemise and organise these technical successes into a modern military force with support of a capitalistic economy in its background.⁽⁶⁾ Thus, as early as

(6) That the iron works was directly under government control was due not only to the necessity of securing sufficient military power but also to various other factors. First, the fact may be cited that big capitalists in Japan, while aggressively embarking on the field of mining and metallurgical industries, had not yet taken up the iron and pig iron manufacturing. The reason for this, which seems to be strange seeing that the phenomenal development of industrial capital had brought about a remarkable increase of the import of steel to meet a mounting demand should be found in the fact that the industrial capitalists, while taking lessons from the failure of the government-controlled iron works at Kamaishi and Nakakosaka as well as the failure of the civilian-managed Nippon Seitetsu Gaisha—Japan Iron Manufacturing Company in 1891, were not sure of successfully running the enterprises in competition with cheap imported pig iron and steel. A second factor may be found in the fact that, because the iron manufacturing industry required large capital investment, the superiority of the available cheap labor would unavoidably be offset to a large extent to the disadvantage of the investors and that Japanese capitalists, who still retained much of the properties of commercial capitalists, did not naturally find such investment altogether attractive.

1880, the Ministries of Army and Navy and the Ministry of Industry made a joint petition for the establishment of a government managed iron manufacturing plant. In 1891, the Ministry of Navy submitted to the second session of the Diet a bill for founding a governmental iron works with the capacity of producing 30,000 tons of steel per year, and the same bill was submitted for the second time to the third session of the Diet in the following year.

However the founding of a large-scale modern iron works was not possible by military requisites alone. The birth of a governmental iron works was made possible through, the ordeal of the Sino-Japanese War which brought about a general maturity of the industrial capital of Japan. In 1895, the eighth Diet for the first time moved to approve the bill for founding the iron works. In the following year, the Ministry of Agriculture and Commerce inaugurated. It was only in 1901 that the first furnace of the Yawata Seitetsu Sho—Yawata Iron Works started operation.

Thus, it is seen that a modern large-scale iron and steel works first came into being in Japan coincident with a general growth of the capitalistic system spurred on by her victory in the aggressive war with China. Viewed in a political light, on the other hand, it was brought by the dirty compromise between the government and the Diet (or absolutism and bourgeoisie). The international situation, which was then witnessing a rapid unfurling of imperialism, proved a further stimulant favoring it. It may also be said that a firm substantiation and growth of industrial capitalism in Japan was possible only on the premise that large-scale modern iron and steel works was duly in being.

While it is evident that military requirements always worked in the background of the energetic expansion of the steel industry in this country, as is witnessed in the successive petitions to the Diet in 1880, 1891 and 1892, the Bill for the establishment of a government-operated iron works, submitted to the ninth session of the Diet in 1896, immediately after the Sino-Japanese War, should be noted with special significance as indicating the same requirements beyond any shadow of doubt. The explanation given by the government authorities in introducing the Bill, ran, in part, as follows:

“The need has long been felt, from the industrial as well as military points of view, for the founding of an iron works, and, now, no further delay shall be allowed. Toward the end of last year, demand rapidly rose for steel, which was in such a dire scarcity, while it is easily predictable that the demand may further increase to meet industrial as well as military needs. Unless steps are taken immediately more natural resources

of the country would be bound to flow out, not to speak of the predicament foreseen in the projected expansion of the nation's military preparedness. Suppose the nation faces an emergency now. If no supply is to be expected on the domestic market, and, if, again, no supply is to come from overseas, it would simply be inevitable for the nation to face a formidable difficulty, because all the arsenals and shipbuilding yards in the country would just be useless in the face of a total lack of the supply of iron and steel. Thus, it goes without saying that an expansion of armament should be preceded by a speedy inauguration of a modern iron and steel manufacturing plant. . . ."

This shows that the birth of the Yawata Iron Works marked establishment of firm foundation of Japan's modern military organisation, including the key-industries, which are essential for the strengthening of her military potentiality. Especially, it should be noted, in this connection, that the growth of Japan's industrial capitalism was always preceded by military as well as economic requirements. The initial budget appropriations for the founding of the Yawata Iron Works amounted to ¥4,090,000, and the total expenditures needed for its actual founding ran int ¥20,000,000 (including ¥580,000 appropriated from the indemnity paid by China as a result of her defeat in the Sino-Japanese War). The Yawata started operation in February, 1901. The following Table No. 1 shows how its production rose by each year.

Table 1. (Unit 1,000 ton)

	1901		1903		1904		1905		1906	
	Pig iron	Rolled steel	Pig iron	Rolled steel	Pig iron	Rolled steel	Pig iron	Rolled steel	Pig iron	Rolled steel
Yawata A	30	5	—	39	33	58	88	65	101	66
Domestic B	57	6	30	40	68	60	79	71	145	69
A/B %	53 %	83 %	—	98 %	49 %	97 %	Un known	92 %	70 %	96 %

Remark (1)—The above Table quotes the figures mentioned in the 1918 edition of the Data concerning Iron Manufacturing Industry.

(2) Production of pig iron at Yawata was suspended between July 28, 1902 and July 22, 1904.

The above Table clearly indicates what importance the Yawata occupied in the domestic production of iron and steel. What is more important, however, is the fact that after 1901, the year when it began operation, the production of pig iron in Japan rose above the amount of that imported from abroad. It is thus, seen, that the iron and steel industry in Japan was placed on a firm foundation for the first time following the

founding of the Yawata Iron Works.

It should be noted, however, that this simply meant that a foundation for Japan's steel industry had been laid, but not that the industry was firmly established. For instance, it is recorded that the domestic production of cotton yarns and cloth, both representative of the consumer commodities, was more than their imports as early as 1885 in the case of cotton cloth production and cotton yarn production surpassed its imports in 1890. This offers a sharp contrast to the case of pig iron and steel, for the domestic production of pig iron surmounted its imports only in 1901, as mentioned above, and, that of rolled steel production as late as 1925 (refer to Table 3). Thus, following the successive expansion of the Yawata Iron Works in the 1890's, the merger of the Nippon Chūcō-Sho (cast iron works) in the Sumitomo financial clique in 1901, the Japanese victory in the Russo-Japanese War, and the founding of the Kobe Seikō Sho (Kobe Steel works) in 1905, the subsequent years up till the end of the Meiji era was marked with successful establishment of the Nippon Seikō-Sho (Japan steel works) (1907), the Wanishi Seitetsu Co. (iron and steel) (1909), Nippon Kōkan Co. (Nippon steel tube Co.) (1912) and the Panshihu Iron and Steel Co. in Manchuria (1911). With these step-by-step progresses marking the growth of Japan's iron and steel industry under civilian control, the industry was eventually firmly established during and after the first World War.

Table 2. Domestic Production of Pig Iron and Its Imports (Unit ton)

	Production	Imports
1893	16,074	23,285
1900	23,303	23,756
1901	56,834	43,160
1902	39,604	29,939

Table 3. Production of Rolled Steel and Its Imports (Unit ton)

	Production	Imports
1901	6,033	159,285
1924	841,347	1,099,243
1925	1,042,978	523,268
1927	1,256,302	948,116

2. Problem of Raw Materials.

I. The Early Iron-Steel Industry in Japan and Iron Ores.

In the early years of Meiji, practically no investigation had been conducted on the resources of iron ores in the country, the volume of the deposited resources left untapped was only a guess work. It was apparently understood generally, however, that the country had a rich deposit of iron ores. Toru Yoshii, the then deputy director of the Bureau of Mining, in 1874, referring to the project for establishing a government-operated mining factory at Kamaishi, is said to have advised that "our country is rich

in coal and iron resources and if these resources are properly mined and processed, they will not only be enough to meet the domestic demand but also have a capability of being exported." Further more the Ministries of Army, Navy and Industry, made a jointly statement advising the founding of a comprehensive iron manufacturing plant, in 1880, which partly ran as follows: "Although this country has bountiful resources of coal and iron, we have not yet sufficiently developed the iron manufacturing industry..." Possibly these statements were made with an eye to the resources of iron sands reportedly found in the Chugoku district in western Japan. No concrete data on these resources, however,

Table 4. Comparison of Pig Iron Output at Kamaishi and in Chugoku District (Unit ton)

	Kamishi	Chugoku
1887	1,492	10,153
1890	3,864	13,592
1892	6,913	9,003
1894	12,735	8,115
1897	16,098	7,826

Table 5. Comparison of Price of pig Iron, Domestic and Imported. (Yen per 100 *kin*)

	Domestic	Imported Pig Iron
1877	1.33	1.15
1878	—	0.95
1879	1.60	0.97
1880	2.24	0.94
1881	2.40	0.88
1882	1.65	1.19
1883	1.23	0.95
1884	0.91	0.90
1885	—	1.13
1886	—	0.86

※ — unknown

are in evidence, and, therefore, no exact estimate of the deposited volume of such resources is possible. It is recorded that, up till the 1880's, the output of pig iron manufactured from the iron sands mined in the Chugoku district was more than that produced at Kamaishi, where the Westernstyle iron manufacturing process had been adopted (refer Table 4).

It should be noted, however, that the iron sands refining process employed in the Chugoku district was so old-fashioned and primitive, little improved from what had been handed down through generations, that, although the cost per ton of the iron sands was actually below that of iron ores produced in the Western countries, the finished iron and steel product, had to be quoted at a price considerably higher than that of Western-produced iron and steel. (refer Table 5)

Around 1884, various domestic iron manufacturers had to complain of difficulties, which was largely due to the increasing pressure being exerted by the imported iron. In spite of this, the Ministry of Navy had earlier instructed that domestic iron ores be utilised as far as possible. However, the fact was that the Kamaishi Iron Works, the practically sole source of the supply of pig iron at that time, faced an extreme difficulty in maintaining operation. Under these circumstances, refining of ironsands

was continued under the close cooperation of the Naval Arsenal and the Yokosuka Naval Arsenal and was capable of competing with the Western-style blast-furnace refining process. With the technical and managerial improvement at Kamaishi, the volume of ironsands refining gradually fell, and, after the latter part of the 1890's, it had to fall out of the competing ranks and reduced to the status of a mere local industry. The same applied to the Hiroshima Iron Works; it had to be sold to a private enterpriser in 1904.

That the traditional Japanese iron (iron sands) refining process had to give way to the Western refining methods in the 1880's is significant, first, as indicating the introduction of the Western-style iron manufacturing industry and the successful installation of modern equipment (in the sense that the modern production method, in this case, was not implanted on an improved version of the traditional one), and, secondly, as pointing to the fact that domestic competitors were mercelessly expelled from the market in the course of such introduction and installation, and, thirdly, as showing the tendency in which the iron sands resources, which had previously constituted the major portion of iron resources in the country, were going to be discarded and give way to the iron ores. This is comparable to the case of "Gara Bō—Japanese original spinning manufacture," which flourished and, then, declined between 1877 and 1887. Technically speaking, however, this similarity ceases just at this point. In the case of "Gara Bo," an improved technique was an addition to the traditional method; in the case of the iron sands, however, the old manufacturing process had simply given way to an improved modern method before it could ever invent an innovation.

Thus, after the latter part of the 1880's iron sands were discarded as the material for iron and steel, and the iron ores began to appear on the stage substituting them.

Were, then, iron ore resources in Japan, excluding iron sands, plentiful?

It has already been stated that, prior to the founding of the Yawata Iron Works, the Kamaishi Works had practically monopolized the Western process of iron refining in Japan. This was due to the fact that the Kamaishi area produced iron ores and that the Kamaishi Works, operated on these ores as its supply. Its operation however, was under constant difficulties ever since its foundation, and it came to such extreme that in 1883 its operation was temporarily suspended. One of the biggest factors of this operational suspension was the acute shortage of the iron resources. In 1883, a report was made public to the effect that the iron deposits in

the Kamaishi mines amounted to mere 130,000 tons. This revelation served to cast a pessimistic shadow on the future prospects of the iron and steel industry in Japan.

On the other hand, the military authorities, naturally, had long since projected a plan calling for the self-supply of iron and steel, and, as early as 1883, these authorities, together with the Ministry of Industry, took steps to advise the Government on the urgency of inaugurating an iron manufacturing company under direct Government control. With the opening of the Diet in 1890, bills for the establishment of such iron works were submitted one after another. The first of these bills was introduced to the second session of the Diet in 1891 and the second to the third session in the following year. Both bills were rejected by the House of Representatives, the ostensible reason for the rejection being that no adequate investigation of iron and steel material was then available.⁷⁾

This indicates that, up till the time the Yawata Iron Works was founded, the biggest problem facing the iron and steel industry of the country was the shortage of the material resources as well as the insufficient investigation. In view of this, the government, after the close of the third session of the Diet, took steps to set up a special commission to conduct investigations on the steel industry, placing special emphasis on objective here the research of iron material resources available for the all-important industry. Finally, the commission reported that beside the 14,000,000 ton iron ore deposits at Kamaishi, there is an estimate of 370,000 ton deposits at Akatani (in Niigata Prefecture), another 840,000 ton deposits at Senninyama (in Iwate pref.) and also a estimate of 400,000 ton of iron sand deposits in Hokkaido. With the ores and iron sands mined at these places alone, the Commission commented that, production of 7,360,000 tons of pig iron would be possible. The commission also reported that a number of other places could be located in the country where big iron ore deposits may be found. The conclusion reached by this commission, was that there was no need for a pessimistic view with regard to the iron ore deposits in the country.

The initial investigation in the field of iron ore resources was followed by a series of further investigation of manufacturing methods of iron and steel and system of iron works, etc. These, eventually culminated in the

(7) The failure of the Diet to fully recognise the necessity of establishing an iron manufacturing plant was responsible for the repeated rejection of the bills submitted to the Diet urging the founding of such plant. Further, the time coincided with an acute business depression immediately following the panic of 1890, when demand in general was at the lowest. Following a general business recovery in 1892 and the Sino-Japanese War of 1894-95, the eighth session of the Diet in 1895, took the initiative to propose the founding a government-operated iron works.

presentation to the Diet of a bill for establishing a government-controlled iron plant. In May, 1896, the bill was passed by the House of Representatives, marking a definite milestone in the annals of effort directed toward the materialisation of the project. The problem of the raw materials, on the other hand, had throughout played a very important part, sometimes even threatening a complete impediment of the program.

Now, let us look at the raw material situation of the Yawata Iron Works, which the Government had finally decided to establish. Up till this time, the iron and steel industry in Japan had largely depended on the domestic iron ore supplies. This fact, however, did not mean that the industry was in any sense independent. On the contrary, as is shown in the statistical Table 6, the national pig iron and steel production was negligible in volume, when compared with that of imported iron and steel. As far as the iron and steel industry was concerned, Japan was then, still in a semi-colonial status, offering a highly profitable market for the Western capitalistic countries. The project to inaugurate an iron plant under government-control, indeed, was an endeavor to make herself free of such humiliating position. However, in the initial stage, the domestically-produced iron ores were still to be relied upon. This, primarily, came from the desires of the military authorities, who attempted to secure its raw

Table 6. Volume of Iron and Steel, Domestically Produced and Imported. (Unit ton)

	Production		Imports	
	Pig iron	Rolled steel	Pig iron	Rolled steel
1874	4,894		11,548	
1877	8,216		16,536	
1882	16,263		29,641	
1887	15,267		65,449	
1889	unknown	1,080	9,807	61,482
1890	"	1,180	10,429	68,330
1891	"	719	12,190	59,465
1892	"	1,135	12,322	36,379
1893	17,283	808	23,285	36,342
1894	16,074	1,208	36,649	89,607
1895	18,126	1,064	35,315	101,905
1896	24,663	1,192	39,036	191,299
1897	26,122	1,080	43,642	207,444
1898	22,480	1,100	63,402	228,832
1899	20,752	908	27,244	120,080
1900	23,303	970	23,756	243,532

materials within the country by developing a number of "bases" of such materials.⁸⁾

It should be noted, in this connection, that the initial program of the Government controlled steel mill was to place emphasis on steel manufacturing and rolling fields, while, as for the production pig iron, the Government planned to produce only special purposes pig iron use as the material for Bessemer Steel making and let Kamaishi and other factories under civilian management manufacture pig iron for other purposes. In the light of such circumstances, the problem of the supply of materials, so far as the plant was concerned, was never as urgent as it might appear. A rapid increase of the demand on the domestic market, however, caused the program to be modified. The capacity of the blast furnace as well as the open hearth furnace was markedly expanded. The result was that both steel and pig iron came to be manufactured through a systematically integrated process, which, in turn, brought the problem of raw materials to the fore with an unprecedented urgency. In view of the new situation, Ishiro Wada, the second superintendent of the Yawata Iron Works, had Kamaishi and Senninyama thoroughly investigated. The Government planned to buy up these mines. But, the plan failed to materialise because their owners refused. However, it was agreed that certain amount of their ores would be supplied each year by Kamaishi. Akatani and Awagatake were still in an undeveloped state, and were selected for purchase. The buying of Akatani took place in 1899, and ¥1,000,000 was invested here for development aimed at an annual production of 100,000 ton of iron ores. However, due to a miscalculations in the quality of ore, the process of mining, and the installation for transportation caused the program for development to be brought to a standstill, with the result that the operation of the blast furnace at Yawata Iron Works could not be started as scheduled.

The preceding lines have made it clear, it is hoped, that even before the commencement of the operation of the Yawata Iron Works, the contemplated supply of the domestic iron ores had to face an impasse. With this situation serving as a springboard, the schemes for domestic exploitation of the iron resources were eventually abandoned. Japan's

(8) The afore-mentioned 1891-92 program for founding a government-controlled iron manufacturing plant had the emphasis placed on the manufacture of steel and rolled steel, while pig iron supply was slated to be imported. However, the program was provisional in nature, for it was envisaged that the establishment and development of a domestic steel industry would inevitably give an impetus to the formation of a domestic market for pig iron, which, would, in its turn, prompt civilian enterprises to embark upon mining and exploiting the untouched resources. In short, the program was simply a precursor to such an eventual objective.

victory in the Sino-Japanese War had prepared the stage, while the abandonment of the plan at this juncture signified that further attempts at surveying the domestic iron ore resources as well as at improving the technique involved were to be entirely discarded likewise. In other words, this, at the same time, indicated that Japan, under the circumstances, had to choose to go along an easier path, which, incidentally, it may be asserted, was necessitated under the restraints of the intensifying price competition on the international market. It was under such condition that the iron and steel industry of Japan was destined to gradually assert itself as an eloquent spokesman of the aggressively imperialistic colonial policy which she pursued.

II. Establishment of System for Reliance on and Securing of Imported Iron Ores

a.) The Initial Steps taken in Securing Foreign Iron Ores:

While the domestic supply of iron ore resources came to a standstill in Japan, as mentioned in the preceding chapter, it happened that the Hanyang Iron Works in China (then under Ching Chao) had a difficulty in respect to the supply of coal. The Hanyang Iron Works, the first of modern industrial establishments in China, was founded in the 17th year of Kwanghsu or 1890 to meet economic as well as military requirements of the times. To supply iron ores to this Hanyang Iron Works, modern iron mines were developed at Tayeh on the Yangtze River, the mining operation of which was inaugurated in the same year with Hanyang. Tayeh iron mines, as was Hanyang Iron Works established with the assistance of German engineers and had imported Western equipment installed. The development of these modern heavy industries by China with its own capital is noteworthy, for this was indication of the Chinese government (Ching Chao) to free its country from the aggression of the imperialistic Western powers on the China mainland. Despite the intentions and desires of the Chinese government, however, the attempt at Hanyang failed. The reason for this is generally understood to lie in the following circumstances. The site of Hanyang had been chosen from the personal conveniences of Chang Chi-tung, Governor of Provinces of Hupeh and Hunan, who was the founder of the Iron Works. It was found that the geographical conditions of the site were highly unfavorable to a satisfactory operation of the plant. To make the situation much worse, it was found soon after it went into operation that the fuel coal to be fed to the machinery was to be imported all the way from Wales in England. This inevitably resulted in a vast financial loss. Even the governmental backup could not save the situation.

More fundamentally, however, the factors which prompted the failure of Hanyang should be found in the financial impasse into which the Chinese government had fallen caused by the payment of a big reparation to Japan following her defeat in the Sino-Japanese War, and also in a drastic decrease in the demand for iron. This can be compared with In the case of the Yawata Iron Works, which also encountered acute technical and financial difficulties. The situation at Yawata Iron Work was rendered so untenable that the accumulated financial deficit up to 1902 since its inauguration mounted to as high as ¥7,500,000, and, eventually the manufacturing of pig iron had to be suspended, temporarily at least. However in Japan, the victory in the Sino-Japanese War and the steady expansion of her industrial capital, coupled by various favorable political and economic factors, eventually made it possible that the impasse be overcome.

The government-controlled Hanyang Iron Works, on the other hand, faced the tragedy of being dissolved only six years after its inauguration. In 1897 it was modified into a commercial concern with civilian capital introduced, the management of which was entirely entrusted to Sheng Hsüan-hwai, a leading chinese businessman of the time. Also, the fuel coal, which had hitherto been imported from the far-off England, came to be brought from Kaiping in Hopeh Province. The price, however, was quoted considerably high, mainly due to then high transportation cost involved and this made it hard to make both ends meet. The predicament forced Sheng to contemplate a plan to exchange Hanyang iron ores with Yawata's coal.

This plan was first communicated to Superintendent Wada of the Yawata Iron Works from Odagiri, the then Japanese consul-general stationed at Shanghai. Wada, upon the receipt of the communication, lost no time in conferring with Hirobumi Ito, one of the elder Statesmen, advising the latter on the advisability of importing iron ores from China. As a result, Ito sailed to Peking in 1899, where he had an audience with the Empress Dowager. He also met Chang Chi-tung, who tentatively agreed to the sale of Tayeh iron ores in exchange for cokes produced in Japan. Wada, then, conferred with Chang Chi-tung and Sheng Hsüan-hwai, which eventually calminated in the conclusion of a contract in April the same year.

It is undniable that the conclusion of this contract was the immediate result of Japan's victory in the Sino-Japanese War. The contract provided for the supply to Japan of 50,000 ton per year of iron ores containing 60 % of iron component at 2.40 yen per ton. The agreement was to be valid for a period of 15 years, while the price would be placed on the

same level for two years. The first ship, Akunoura Maru, fully loaded with 1,600 tons Tayeh iron ores, disembarked from the wharfs of Tayeh on July 4, 1900. This marked the first import of iron ores from China.

As has previously been stated, the Yawata Iron Works commenced operation on the project that iron ores required would be supplied domestically, however the problem of raw materials confronting the enterprise saw a solution when the prospect opened up for iron ores to be imported from China. Furthermore, it was only on this possibility, that a plan of expansion at Yawata, far surpassing the original program, was made possible.

This fact is highly significant in that Japan's iron and steel industry was first enabled to stand on its own on the premise that its "colony" would serve as a base of supply of iron ores. The import of Chinese iron ores was made further easier following the abolishment in 1901 of the import duties. This, on the other hand, had the effect of exerting adverse influences on Kamaishi, depending on the supply of domestically-produced ores, and strengthening the position of Yawata, while, at the same time, Japan's dependence on foreign iron ores was heightened more and more.⁽⁹⁾

The abolishment of import duties on iron ores significantly contrasted with a similar measure taken in 1896 on the import duties on raw cotton, which, together, served to import "low-priced" raw materials from abroad. There, however, was a big difference to be noted. The abolishment of import duties on raw cotton signified a victory on the part of spinning capitalists in their struggle with cotton growers and landowners. The spinning capitalists, of course, were not content simply with the purchase of raw cotton from the free market. They, on one hand, embarked upon the formation of a vast system for the purchase of raw cotton, while, on the other, started a vigorous campaign, within less than a few years following the abolishment of the import duties, for not only securing the cotton-growing lands within the area either under the monopolistic control or with the possibility of coming under their control, but also for improving the quality of, and increasing the output of raw cotton. This was for the purpose of securing raw materials required for further phenomenal expan-

(9) That the output at Kamaishi, the only civilian-managed iron manufacturing plant stood twenty years after its inauguration interspersed by Japan's victory in the Sino-Japanese and Russo-Japanese War, at mere 40,000 tons for pig iron and 5,000 tons for steel, was due to the fact that it had to fight under a constant oppression by imported pig iron and steel, and, also, that Yawata was in a position to enjoy an advantageous stand by dint of low-price iron ores imported from China. Prior to the World War I, the pig iron manufactured at Yawata was quoted at 23.10 yen per ton while that made at Kamaishi was quoted at 27.30 yen.

sion of Japan's modern industries for imperialistic ambitions. They, however, were not altogether successful in their ambitious enterprise. Their attempts were made repeatedly to place direct control on raw cotton produced in North Korea and on China mainland. Such attempts at securing possession of a vast area of lands capable of producing raw materials in an amount enough to stand the consumption by the fast-expanding spinning industry failed to achieve the expected results due to the opposition raised by the agrarian populace concerned. With regards to the abolishment of import duties on iron ores, on the other hand, facilitating a systematic import of iron ores for Japan's iron and steel industry, was followed by a direct control on foreign iron ores, mainly in China and Korea. This, bespeaks the essential requirements for a strengthened Japanese military power. It was not merely a question of low-priced raw materials and their securing: it was an absolute necessity as well as demand and, in order that that demand be fully met, Japan's capital began a vigorous movement to flow to China mainland.

b.) Commencement of Capital Export and Its Progress :

For Japan's iron and steel industry to successfully compete against the mounting oppression exerted by the imperialistic Western Powers, then so intent upon dividing up Oriental colonies⁽¹⁰⁾, something more positive and tangible than a mere abolishment of import duties on iron ores was needed so that supply of low-priced raw materials be firmly secured. Positive steps had to be taken for the purpose of acquiring for Japan's own needs whatever raw materials required. In the face of a vigorous interference by Germany with her attempt to purchase China's iron mines, Japan, in the midst of an acute financial impasse under the burden of the paramount needs of armament replenishment on the eve of an impending war with Czarist Russia, in the spring of 1903 boldly embarked upon concluding an agreement with China on a loan to Tayeh mines. In November that year, the Industrial Bank of Japan moved to loan a sum of 3 million yen against the security comprising the Tayeh mines and its attached installations (at 6% interest rate per annum for a term of 30 years). The agreement stipulated that "for the duration of that period the Tayeh mines shall not be leased or ceded, and have their ores be sold to foreign powers" and that "the Tayeh mines shall undertake over a period of 40 years to

(10) China's defeat in the Sino-Japanese War revealed that she had degenerated to a weak, decadent country, which invited foreign powers' competitive attempts at dividing her up. During the decade between the Sino-Japanese War and the Russo-Japanese War, the foreign powers concentrated their imperialistic adventures on the China mainland so that their confrontation on the European Continent was seemingly temporarily slackened.

deliver to Yawata 17,000,000 ton of iron ores and 8,000,000 ton of pig iron". It was also stipulated that "the Japanese agency at Tayeh shall have the right of directing and supervising matters regarding the mining of ores". This was the first concrete step taken for a resultant advance to China mainland of Japan's capital.⁽¹¹⁾

However, the road leading to this was never smooth and easy. The commencement of the operation of blast furnace at Yawata, in spite of the apparent settlement of the problem of raw materials following the purchase of the Tayeh mines, had to face a series of troubles immediately afterwards. The situation became so bad that the production of pig iron at Yawata had to be suspended between July, 1902 and July, 1904. According to a report compelled by the committee for investigating iron manufacturing industry, which was set up by the government in the same year, the suspension was caused by various factors of miscalculation and miscarriage, including errors in the order of work, mistakes in budgetary and accounts arrangements and the improper way in which foreign engineers were employed. The fundamental cause, however, should be found in the immaturity, both economic and technical, on the part of the contemporary Japan and in the fact that Japan was at that time still so immature in many respects that she was not accustomed to a reasonable management of the modern iron and steel industry. On the basis of the report, the government hastened to take appropriate measures to tide over the difficulty, and, in July, 1904, they were able to see the blast furnace put into operation again. It needs no explanation that the commencement of the Russo-Japanese War demanded a speedy restoration of operation at Yawata as well as the loaning of the Tayeh iron mines. Japan's victory in the gigantic war against Russia stimulated a spectacular development of Japanese economy, while the increasing demand, both military and economic, made it imperative that the Yawata Iron Works to be more and more expanded in scope and scale. The importance of this requirement is obvious in consideration of the fact that, in spite of the drastic increase in the wartime demand, the major portion of pig iron and steel needed in Japan had still to be imported from abroad. For instance, of the total domestic demand for 230,000 ton of pig iron in 1905, only 80,000 ton were supplied by Kamaishi and other domestic factories, while domestic output of rolled steel stood at mere 70,000 ton against the demand of 450,000 ton. In 1906, a plan was formulated for doubling

(11) With regards to the advance to China of Japan's spinning capital, it is noted that, after a failure in 1895, the Mitsui Yoko, in 1902, succeeded in buying up the Tasun Spinning Co. which later was re-named Shanghai Boshoku Daiichi-Shō.

the output at Yawata to 180,000 tons; the 22nd session of the Diet passed the budgetary appropriations of about ¥10,900,000, demanded by the government for the execution of the expansion program. The work for expansion was started in 1907 and was finished in 1909. In spite of the successive financial deficit at Yawata Iron Works, which had continued ever since the inauguration (the accumulative deficit up to 1909 since the inauguration stood roughly at ¥11,000,000), and, in the face of pessimistic views expressed regarding the future possibility of the industry as well as the opinion urging the advisability of placing the industry under mon-civilian control, the Yawata continued under a powerful governmental poly, and this was entirely for the purpose of meeting those requirements, of which mention has been made in the preceding lines. Keeping pace with the expansion being effected at Yawata, more loans were advanced to Hanyang and Tayeh.¹²⁾

In 1906, the Mitsui Bussan loaned 1,000,000 yen (at interest rate of 9.5%, for 8-year term), and in 1907 the Ōkuragumi 2,000,000 yen, to Hanyang and Tayeh. The latter subsequently loaned another 800,000 yen. In 1908, it was planned that Hanyang, Tayeh and Pingsiang (coal mines) be amalgamated so that a streamlined management be made possible covering raw materials, on the one hand, and the manufactured products, on the other. In order that a purely civilian commercial undertaking be initiated in the place of the old government-controlled enterprise, these three mines were duly amalgamated into the Han-yeh-ping Iron Works, Ltd., when the Yokohama Specie Bank in the same year moved to loan a sum of 2,000,000 yen (at interest rate of 7.5%, for 7-15 year term) to the newly-founded company. In 1910, another 2,330,000 yen was loaned (at interest rate of 7%, for 6-11½ year term) in an effort to frustrate the project being advanced by the Western Steel Company of Seattle and the San Francisco Shipping Company for the purchase of iron ores. Further, in 1911, keeping pace with the second expansion program being formulated at Yawata, the Yokohama Specie Bank, in March, the same year, loaned another 6,000,000 yen (at interest rate of 6%, for 4-15 year term). With the outbreak of the revolution in China in that year, the operation at the Han-Yeh-Ping was suspended temporarily. In the meantime, it was planned that the undertaking be placed under a joint Sino-Japanese management, and, a sum of 3,000,000 yen, it is recorded, was advanced as part of a

(12) After 1910, the Yawata ceased to show deficit. This was entirely due to the following factors: (1) import of low-priced iron ores; (2) nonpayment of interest and taxes; (3) postponement of the redemption of the fixed capital and (4) non payment of dividends on the grounds that the organization was directly under State control.

loan to that company through the Yokohama Specie Bank. It was, indeed, advanced to the revolutionary regime for military funds by the Mitsui Bussan. Later, in 1912 6,000,000 yen was loaned, followed by 15,000,000 yen loaned in 1913. The aggregate of the loans since the first loan was advanced, reached the big sum of 31,650,000 yen⁽¹³⁾, constituting 26% of the total Japanese investments in China, excepting Manchuria. While these investments were made for the supply of the ores but also for pig iron, the fact that all these loans were advanced to a single enterprise is to be noted with special attention. And, it should be noted, also, in this connection, that this foreshadowed the conclusion in 1915 of the notorious 21-article pact with China.

It is hoped that the foregoing lines have made it clear the fact that, at this stage of development, the monopolistic capitalists of modern Japan closely aligned themselves with the nationalistic moves of the government as was seen in their positive attitude in advancing successive loans to the Chinese corporation. Ostensively loaned by certain specific banks, the funds advanced to China actually constituted government funds, and this fact, which is highly significant, is what distinguishes Japan's new moves in China from those at the time of the Sino-Japanese War. Japan's acquisition of iron ores produced in China meant not only that she was thus enabled to move ahead toward a further substantial replenishment of her military and economic power but also that her powerful financial cliques, known as the Zaibatsu, obtained a foothold for making inroads in China. It was said that Mitsui's loaning of 3,000,000 yen to the Chinese revolutionary regime, mentioned earlier, carried a tacit agreement not only on re-modelling the Han-Yeh-Ping into a joint Sino-Japanese concern, but also on granting special priority concessions to the Mitsui with regard to the construction of railways, development of the mining and electricity industries and other enterprises which would be undertaken by the Revolutionary regime. Japan's military requirements happily combined with the desire to seek profit on the part of the Zaibatsu, and the result was that Japan embarked on a vigorous and ambitious process of colonization of China. It will be noticed here, further, that Japan's early capitalism, in these undertakings, unmistakably manifested its characteristics feature in which its aggressive property — the moves of her financial capitalists — was partially replaced and partially supplemented by the absolutist government. It is significant, in spite of all this, that, here, too, the prin-

(13) To this aggregate total of loans, repayment was made partially, the exact figure of which, however, is unknown. Payment of interest, too, was in arrears, but the entire amount, including both the capital and interest, is not known.

cial role was played by the government. Ever since the Meiji Restoration, the leadership and protection afforded by the government capital had always been mainly instrumental in pushing head the modernization of Japan, for, at that time, almost no private capital was accumulated and, naturally, could not well afford to embark upon major scale overseas investments. Under the circumstances, investments covering a lengthy period of time and undertaken under an unstable condition, had still to be made under the leadership of the government capital. And, it should be noted that such was not because the internal capital was overabundant but because of an urgent stimulation spurred on by military requirements.

c.) Form of Investment and Sources of Investment:

The big tremendous loans to Tayeh were all in the form of advances against its factory installation and other equipment offered as a security. Japan was already executing her right of directing and supervising the mining of iron ores at Tayeh by dint of the stipulation of the 1894 contract. Such, however, was not deemed sufficient, and Japan desired to place the mines under her direct control. And, for this purpose, repeated attempts were made to place the concern under a joint Sino-Japanese management, which, however, ended in failure each time the attempt was made. In 1908, Sheng Hsüan-hwai, in conjunction with Japan, attempted to organize a joint Sino-Japanese enterprise. But, his attempt could not succeed because the Foreign Capital Law, then in force in China, prevented it. In 1910, the Law was so amended that foreign capital would be allowed to be introduced up to one half of the capital involved. Talks for Sino-Japanese joint undertaking, then, progressed without a hitch between Sheng and Japan, until, however, the project had to end in a failure in the face of a rapid surge of a racial movement among the Chinese people and, at the same time, being obstructed by German interests which had been vested in Tayeh.

The Chinese people, but not the comprador-capitalists, aspired for a racial independence of China. The Chinese Revolution of 1911 put an end to Sheng's plan to work with the Japanese, while Japan's desire in the same line, for which she had been given a secret understanding as a price for having loaned military funds to the Chinese Revolutionaries, could not be realized in the face of a fast aggravating popular movement in China for regaining her lost national prestige, which, combined with various obstructionist moves by foreign powers, forestalled Japan's ambitions on the China mainland. With the advance of another big loan effected in 1913, Japan moved to dispatch to Tayeh a highest adviser and a financial adviser charged with the supervision of the projected expansion

projected expansion program. Plan to place the concern under a joint Sino-Japanese management, however, could not again be materialized. Japan's failure in this regard, as is seen in the foregoing lines, was partially due to the recognition, on the part of the awakening Chinese, of the awakening Chinese, of the military and economic importance of the Han-Yen-Ping Mines, and partially, to the persistent interference made by the foreign powers.

Now, where was the source of these loans from the nation's treasury to be found? The loan advanced by the Industrial Bank of Japan in 1894, amounting to 3,000,000 yen, was made against the security in the form of debentures issued by that Bank which was taken over by the Finance Ministry. This loan was later made through the Yokohama Specie Bank, a special Government Bank. The loans advanced by the Mitsui and Okura, likewise, were subsequently taken over by the Financial Ministry so that they nominally were made by the Yokohama Specie Bank. Thus, it is seen that all of these loans had to be financed by the Department of Deposit of the Finance Ministry. Question now arises where did the Department of Deposit find the source for all these funds advanced to China? The answer is clear: the source for the major portion of these funds, 80%, was found in the postal savings by destitute farmers, merchants and laborers. Their meagre incomes, deposited at the post offices throughout the country, were comparable in amount to bank deposits. It is said that in 1919 the amount of investments in China financed by the Department of Deposit was no less than 50% of the total funds deposited there.¹⁴⁾

That the Department of Deposit fund was, thus, utilized for Continental investments was important from two aspects. It worked, indirectly, to lessen the abnormal expansion of the national budget seen after the Sino-Japanese War, because it was in a form of voluntary formation of the financial fund. The result was that private capital accumulation was spared from burden of the issuance of government bonds, and increased taxes, resulting from such abnormal expansion of the governmental expenditures. The urge for the accumulation of capital in order to compete with advanced Western Powers had to be constrained by the prevailing poverty at this time of industrial expansion, and a shortage of capital had ever to be closed up. The situation was further aggravated as, with

(14) The major part of the fund available at the Department of Deposit was used for investment in China through medium of the Bank of Taiwan, the Bank of Chosen, the Yokohama Specie Bank, the South Manchuria Railway Co. and the Oriental Development Co., while the remainder was invested in National bonds.

the adoption of the gold standard system, which checked the capital accumulation through inflation policy. And, in so far as this was concerned, the needs for armament expansion and the consequent swelling of national budget, calling for increased taxes and successive issuance of government bonds, had always to fight against the chronic shortage of capital. Under the circumstances, the mobilization of the Department of Deposit fund was, in effect, as effectacious as a two-edged sword in that it helped to embark upon the required national investments overseas without ever unduly oppressing private capital. Secondly, from the view point of original supplier of the fund, it was not only a voluntary contribution to the government but the fund was not used for their benefit but for the benefit of the government.

Lastly, mention must be made of the fact that the export of state capital in the form of the Department of Deposit fund loaned, saw a drastic increase in amount after the Russo-Japanese War. This was seen not only at Tayeh. While Japan's acquisition after the Sino-Japanese War of special rights for launching industrial enterprises in the Chinese territory had opened up the possibilities of investing for such purposes, the cases of big-scale investment actually undertaken there up till the time of the Russo-Japanese War included, merely, the inauguration of the Shanghai Spinning Corporation by the Mitsui in 1902 and the loans advanced to Tayeh two years later.¹⁵⁾

This was, of course, partly because the pressure exerted by foreign powers worked to obstruct Japan's advances.¹⁶⁾

It was, at the same time, due to the circumstances that, because of the rapid post-war economic development coupled by the inevitable expansion of national finances spurred on by the continued need for increased armament, Japan could not well afford to invest overseas on any major scale. At this stage of development, the Department of Deposit fund was

(15) In Chosen (Korea), cases of the construction, for purely purposes, of the Seoul-Inchon railway line in 1901 with the aid of a government subsidy, and of the Seoul-Pusan railway line, in 1904, with military fund, as well as the unneglectable activity of the Korea branch of the Daiichi Bank, may be cited. These, however, are simply negligible compared with the heavy government investments in the years after the end of the Russo-Japanese War.

(16) While it is a fact that Japan's victory in the Sino-Japanese War opened the way for a competitive inroads in China of Western Powers, it may not be denied that Japan's position was not entirely enviable. Not only because of Japan's inability to raise sufficient capital, but also because of the strong pressure exerted by Western Powers, especially Russia, Japan, as far as her advances in China were concerned, had to be relegated to the background. Only Japan's acquisition in subsequent years of a role of watchdog for Britain, enjoying the largest interests there, against the aggressive Russia, offered her an opportunity to embark upon a more active move in China.

mostly being appropriated to cover government bonds. What, then, was the factor which rendered it possible that the fund be eventually mobilized for overseas investment?

d.) Import of Foreign Capital

While the payment by China of an indemnity amounting to 364,000,000 yen as a consequence of her defeat in the Sino-Japanese War enabled Japan to adopt the gold standard, the real intention of Japan in adopting the system was to induce foreign capital through the resultant stabilization of her foreign exchange and the strengthening of her links with the international monetary market.¹⁷⁾

The introduction of foreign capital to Japan was also required for the purposes of accelerating the speed of the accumulation of capital and stimulating the expansion of financial fund. The government which, apprehending the liability of placing the nation under foreign domination as a result of foreign capital introduced, had held a position opposing such introduction of foreign fund,¹⁸⁾ had now to recognize the necessity of such procedure, and, as a prelude to such eventuality, decided on the enforcement of the gold standard. Then, steps were taken by the government for founding the Industrial Bank of Japan in 1902 for dual purposes: to forestall, on one hand, unrestrained and unjustified imports by the still-weak domestic capital, and, on the other, to preclude the possibility that the domestic industries, especially the construction of railways with high military importance, be subjected to the sway of foreign money. This was virtually a measure intended to prepare a reasonable layout for receiving foreign money being brought in. The amount of foreign capital actually introduced during the period following the Sino-Japanese War up to the Russo-Japanese War, however, only amounted to 194,865,000 yen (as at the end of 1903), the major part of which comprising loans by the government.

(17) While the adoption of the gold standard was intended for the stabilization of her currency and the introduction of foreign capital, the enforcement of such system in an underdeveloped country, it is noted, is liable to make it inevitable for that country to depend on foreign capital and, consequently, on the international monetary situation. This particular point has so far not been fully elaborated, but the import and implications of the tendency should not be overlooked, for, as the country involved is forced to maintain the gold standard as an institution, it may not be in a position to satisfy the motives of accumulation through an inflation of the currency will at once bring about gold conversion, a nominal rise of commodity prices, increased imports and flow overseas of gold, which, in turn, will tend to undermine that institution itself.

(18) The principal foreign loans effected up to 1903 comprised: 1,000,000 pound British loan with 9% interest in 1870; 2,220,000 pound British loan with 7% interest in 1873. Some foreign investments were made in the foreign settlements, which, however, were gradually liquidated by the government.

The factor which caused foreign capital investement into Japan to be limited to such a small amount was the fact that, with a war with Russia being considered imminent, Japan failed to offer a stable and safe market alluring it. The foreign capital, however, it should be noted, helped to facilitate the expansion of national expenditure caused by the speedy replenishment of Japan's military preparedness, and, on the other hand, ameliorate the tightening financial situation. This made it possible for Japan's industrial capitalists to establish themselves on a stable and progressive foundation and, then, to attain a pre-monopolistic status. Japan's emergence as a "British watchdog" in the East Asia as a result of the conclusion of the Anglo-Japanese Alliance in 1902 and the introduction of foreign capital in the same year, as mentioned above, offered ample conditions for the abovementioned subsequent advance of Japanese capital in spinning and iron industries (Tayeh) in China. This fact is highly significant, for, but for such preliminary preparation, Japan's control of the iron ore resources at Tayeh would have been simply impossible not only for economic reasons but also on account of obstructive interferences by foreign powers, especially Germany, which, then, held definite interests in Hanyang and Tayeh. Seen from this angle, Japan's advance to Tayeh, in the English eye, meant an extremely important move for checking further advances by Russia and Germany. Generally, however, this important aspect is apt to be overlooked.

Now, Japan's victory in the Russo-Japanese War induced much foreign money to Japan. It should not be overlooked, however, that the war could be fought only by aid of about 800 milion yen loaned from Britain. The foreign loans shouldered by Japan, which had amounted to 190,000,000 yen or so at the end of 1903, rose to no less than 1,850,000,000 yen toward the end of 1911, and to 1,960,000,000 yen by the and of 1913. On the basis of such enormous borrowed foreign money could Japan embark upon a vast-scale investment in Korea and China on on the heels of her victory in the war against Russia, and, against such background was a positive Japanese investment in Tayeh possible. Japan, indeed, was not able to wage war by herself nor was she in a position to export capital without help from outside. And, in so far as this preposition held good, Japanese imperialism, indeed, was one subservient to a stronger imperialism of foreign nations.

e.) Effect of Japan's Securing of Overseas Resources:

It has already been pointed out that Japan's adventure at Tayeh was entirely for the purpose of strengthening her military power and of acquiring materials for her expanding productive industry. While her succes-

sive loans to Tayeh were never primarily intended for profit only, the economic motives underlying these loans were at the same time never overlooked. So long as Tayeh offered a springboard for further acquisition of economic concessions in China on the part of Japan, the price paid for these loans was not exorbitant, for they at once enabled her to satisfy both iron ores and economic requirements in the form of the supply of cheap military being assured. (Refer Table 7).

Table 7.
Amount of Ores supplied to Yawata
(1,000 ton)

Year	Domestic	Korea	China (Tayeh)	Ratio of Tayeh	Total
1901	24	3	70	70 %	99
1907	23	18	110	73	151
1912	12	127	262	65	402
1914	14	167	250	59	422

- Remarks: (1) Despite the remarkable increase of ores from Korea, the predominant position of Tayeh remains unaltered.
(2) The marked decrease of the supply of domestic ores in proportion to the increase of supply from overseas territories should be noted.

Keeping pace with the expansion of installations at Tayeh, the Yawata, consequent upon the rationalization of its operation aided by bigger financial appropriations¹⁹⁾ and an overall state protection, was by degrees enabled to manufacture pig iron comparable in quality with foreignimported one,²⁰⁾ while, in respect to steel production, likewise, the qualitative

(19)

Rationalization of
Blast Furnace Operation at Yawata

Year	No. of Blast Furnacs	Average daily output for furnace (ton)	Amount of cokes per ton of pig iron (ton)
1901	1	82	1.63
1907	2	132	1.13
1912	3	162	1.02
1914	4	177	1.03

(20)

Comparison of Pig Iron Production Cost
in Japan & U. S. A. in 1909
(Unit yen per ton)

	Ores	Cokes	Coal	Steam cost	Labor cost	Main- tenance cost	Various	Total
Yawata	11.885	11.635	0.370	0.588	1.512	0.715	1.713	28.422
U. S. A.	14.600	7.780	0.860	0.240	1.540	0.680	2.320	28.020

level of foreign-manufactured steel was being speedily approached. This means that the Yawata was headed toward a stabilization as far as its managerial operation was concerned, while its rapid growth amply promised a brighter future prospect for the steel industry in Japan. (Table 8)

Table 8 (Unit 1,000 ton)

	1901		1914	
	Pig iron	Rolled steel	Pig iron	Rolled steel
Yawata	30	5	222	230
Domestic	57	6	300	283

In 1899 Japan effected a comprehensive revision of her tariff rates, and this made it possible for her to free herself from a semi-colonial bondage which had bound her for years ever since the Meiji Restoration. This singularly coincided with Japan's advance to China, bold and resolute, in a sustained effort to colonize that backward country. This adventure, it is noted, was possible only on the basis of her firmly-founded basis of her firmly-founded basic industries and a spectacular strengthening of her military power. On the other hand, Japan at this stage was destined to witness a speedy industrialization of her capitalism, an extensive modification of her industrial setup, and, in turn, the formation of a full-fledged financial capitalism.

This process, meanwhile, produced the following consequences in China. That Tayeh constituted an indispensable supply base for Yawata was, in other words, to say that the fate of Tayeh (Han-Yeh-Ping) depended solely on the demand by Yawata. (Refer tables 9 and 10).

Table 9.
Tayeh Ores produced and exported to Yawata
(1,000 ton)

	1901	1902	1904	1905	1908	1912
Supplied to Yawata (A)	70	50	60	72	127	262
Produced at Tayeh (B)	119	75	105	150	172	721
A/B %	59	67	57	48	74	36

Table 10.
Pig Iron produced at Hanyang Iron Works and Amount of
Pig Iron exported to Yawata
(1,000 ton)

	Output	Exports to Japan (Yawata)	Ratio
1902	16	2	12 %
1905	32	23	72
1908	66	28	42
1911	83	57	70

This, on the other hand, benefited Han-Yeh-Ping capitalists. In his classic book on the mining industry of China, Collins says that the Chinese apparently could accrue benefit, in undertaking the mining enterprise, from what the Japanese iron works paid for the ores supplied. This fact eloquently bespeaks the propensity of capitalists in general, who never shrink from the probability of being degraded to the status of, even, a comparador provided that a certain margin of profit was assured.

The successive borrowings from Japan and the selling of their ores at a low price level, on the other hand, unavoidably compelled the Chinese capitalists to seek a meager margin of profit in forcing the laborers to work for low wage and under worsened labor conditions, for such was the only alternative available for them to partake in the Imperialistic lion's share. Therefore, the rise and decline of the Yawata was at once their own rise and decline, and, in so far as this bond existed, they were mutually and inseparably related to each other.

Then, why were there successive investments (an accumulation of loans as seen from the Chinese side) undertaken? The reason for this should be found in the fact that the low price level at which the ores sold worked to restrict the margin of profit. The lion's share on their part was never plenty, and on the other hand, the capital accumulation required to meet the ever-mounting demand of Yawata was blocked by the very Yawata. They, however, had nothing to complain about the accumulating loans, no matter what they brought about in their train, so far as they meant an improvement as well as replenishment of the production facilities, and, in turn, the absolute amount of profit accruing therefrom.

Speaking from a different angle, this, again, meant that the Yawata, in its sustained effort to expand its production facilities as well as improve them, both qualitatively and quantitatively, with a view to successfully competing with the Western Powers, was inevitably forced to invest successively in Han-Yeh-Ping.

The accumulation of loans by Japan signified not only cementing of her direct control but also that the entire range of China's modern mining and iron manufacturing industries fell into the hand of the insatiable imperialism of the rising Japan. It further paved the way for a marked increase of Japan's exports to China, while, on the other hand, China exported more and more raw materials. This, again, was accompanied with the inevitability that China found it difficult to have its racial industry found it difficult to have its racial industry promoted as cheap capitalistically-manufactured commodities continued to flow in. China's attempt at industrialization, thus, was seriously blocked, while her obsolete feudalistic institutions were allowed to remain. These were the factors which made China so dependent on foreign countries in regard to industrial commodities and means of production. And, this worked to further the semi-colonial status of China, which, for subsistence, had to export raw materials in exchange for the import of finished goods.²¹⁾

Further, the accumulated loans to China were effectively utilized by Japan for taking hold of various other economic interests in that country. Of course, instrumental in this were some other factors in addition to Tayeh. It cannot be denied, however, that Tayeh played the role of a lever in this regard. It is seen, from the above, that Japan's successful emergence from a humiliating position of subservience to foreign influence to the status of a modern industrial country coincided with the accentuation of the process of colonization of China. It should be noted, however, that Japan's emergence from such position was never perfect in that she had ever to rely on foreign money. In this sense, Yawata's rise may be said to have eloquently exemplified the inherent contradictions Japan had to carry—subservience and aggression.*

Now, our chronological survey of Japan's endeavor through years to secure the supply of raw materials required for rising industries should be complemented by a description of her similar adventures made, in an intensified manner, in Manchuria and Korea following her victory in the Russo-Japanese War, for the very crux of her aggressive ambitions on the Continent existed here. In the years under our survey, however, Tayeh was the central figure in relation to Japan's effort to take control of ore resources in China. With Tayeh serving as a springboard for further aggressive moves, Japan was enabled to embark upon more ambitious

21) Japan's trade with China rose to ¥170,000,000 in value from ¥36,000,000 during the 1897-1912 period. The ratio of increase, 4.7 times, was far above that of general trade increase, which stood at 3.2 times. In 1913, Japan's export to China consisted 21% of total imports of China, ranking first among all other foreign countries.

adventures, military and economic, in Manchuria and Korea.

f.) Korea and Manchuria :

It has already been stated that, after the Russo-Japanese War, Japan launched upon ambitious programs of acquiring ore resources in Korea and Manchuria. Korea's colonization following Japan's victory in her war with Russia opened the way for Yawata to reach the iron mines at Inritsu and Tainei in 1907. This marked the first important step in the role the Korean ores had to play as far as the supply of the ores to Yawata was concerned, for, ever since this time, they were destined to play a big part in this regard side by side with the ores supply by China. (Refer Table 7). At about the same time, the Mitsubishi, which had been eagerly looking for promising mines on the West coast of Korea, moved in 1911 to buy up a mine near Kenjippo.

In Manchuria, the task was in charge of the South Manchuria Railway Company, founded in November, 1906. In 1909 it discovered vast iron deposits at Anshan. Upon close survey and formulation of detailed plans of exploitation, the big organization energetically launched upon an ambitious scheme aimed at manufacturing iron. The Ōkura, another of the big Zaibatsu clique, meanwhile, founded in 1911 an iron manufacturing company at Penshihu.

Through these processes, a concrete national system for manufacturing iron and steel was in steady making.